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ABSTRACT

This paper examines Dakhota phonology and morphology and how they relate to each other in lexical phonology. Earlier research on Dakhota lexical phonology claimed that structure preservation applies throughout a lexical derivation and may only be shut off by exiting the lexicon. Although work by Kellogg (1991) in Lakhota attempts to uphold this relationship between lexical phonology and structure preservation, other researchers refute the claim. This paper also discusses the problem of syllable structure within the lexicon and argues that structure preservation seems to be shut off early in the lexical derivation. (MDM)

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THE LIMIT OF STRUCTURE PRESERVATION IN DAK^{h}OTA LEXICAL PHONOLOGY

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Abstract: Some of the earliest papers on Lexical Phonology claim that structure preservation applies throughout a Lexical derivation and may only be shut off by exiting the Lexicon. Work by Kellogg (1991) in Lak^{h}ota attempts to uphold this relationship between Lexical Phonology and Structure Preservation but recent work in Lexical Phonology and some older work in Dak^{h}ota refute this claim. After a minimal discussion of Dak^{h}ota phonology, morphology and how they relate to each other in Lexical Phonology, I will take up the problem of syllable structure within the Lexicon and show that Structure Preservation seems to be shut off early in the Lexical derivation.

Introduction

The sources for this paper are the works on Dakota by Boas & Deloria (1941), Shaw (1980, 1985) and on Lak^{h}ota by Rood & Taylor (1976), Kellogg (1991). Although my sources come from both Lak^{h}ota and Dak^{h}ota, I will only use the term Dak^{h}ota unless referring to a specific text or rule. One reason for making this choice is that one of the most complete theoretical works was written by Pat Shaw (1980) on Dakota. She uses an *SPE* framework to develop Underlying Representations (UR) of many Dak^{h}ota words and since Lexical Phonolgy makes use of URs, it is only natural to use her book as a source.

Due to limited space and the large topic that I've chosen, I can't go into every aspect of the theories of Lexical Phonology, Prosodic Morphology/Phonology, or other Non-linear Phonological theories. Two excellent sources for more information are Autosegmental & Metrical Phonology by John A. Goldsmith (1990) and Morphological Theory by Andrew Spencer (1991).

Lak^{h}ota is a dialect of Dak^{h}ota (or Dakota), which is a member of the Upper-Mississippi River sub-family of the Siouan family. There are three dialects of Dak^{h}ota: Dak^{h}ota (d-dialect), Lak^{h}ota (l-dialect), and Nak^{h}ota (n-dialect). The Lak^{h}ota dialect is generally associated with the reservations west of the Missouri River in South Dakota: Pine Ridge, Rosebud, Lower Brule, etc. Dak^{h}ota is east of the Missouri in South Dakota and Minnesota. Nak^{h}ota is associated with the northern Sioux in Canada and North Dakota. Of the three dialects, Lak^{h}ota has the most speakers and since most of the major pedagogical texts are in Lak^{h}ota its use seems to be spreading.

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Dak^{h}ota Phonemes

Table I is a compilation of the phonemes described by both Boas & Deloria (1941) and Shaw (1980). The (d) and (l) are shown in parenthesis since Dak^{h}ota uses /d/ where Lak^{h}ota uses /l/. When a /p/ or /k/ comes before an /m/ or /l/ it is realized phonetically as [b] or [g] respectively. Thus [b] is an allophone of /p/ and [g] is an allophone of /k/. Following Shaw (1980), I will not use them. [b] also occurs phonetically in first person singular forms of a group of verbs which have a stem initial *yu-* or *ya-* such as yuha 'to have.' The first person singular form would be (phonetically) [bluha] in Lak^{h}ota and [bduha] in Dak^{h}ota. There is a possibility that this occurence of [b] is the result of a sound change brought on by the first person pronominal prefix *wa-* and the initial [y] of the verb stem. In any case, the voiced stops usually occur in predictable environments so I will not treat them as phonemes. The [b] is shown only because Shaw (1980) mentions several words where it occurs outside the predictable environment.

	labial	dental	palatal	velar	glottal	laryngeal
v-less	p	t	c	k		
vless asp	p^{h}	t^{h}	c^{h}	k^{h}		
v-less eject	p'	t'	c'	k'		
voiced	(b)	(d)				
vless fric		s	š	x		
eject fric		s'	š'	x'		
voiced fric		z	ž	ɣ		
nasals	m	n				
glides		(l)	y	w	?	h

TABLE I:(from Shaw (1980)) Dak^{h}ota Consonants

Table II shows the vowels for Dak^{h}ota, there are eight phonemic vowels in Dak^{h}ota: five oral and three nasal.

i,į	u,ų
e	o
a,ą	

TABLE II:(from Shaw (1980)) Dak^{h}ota Vowels

Lexical Phonology

The theory of Lexical Phonology arose out of the SPE theory of phonology in an effort to explain problems with interaction of morphology and phonology. According to the SPE theory, morphological rules apply before phonological rules. In order to allow phonological rules to apply within a concatenated word, different classes of morphemes were given boundary markers (i.e. +,-,%,etc). A phonological rule could then be given a domain of application which would specify where the rule could apply. Lexical Phonology does away with the strict separation of morphology and phonology by allowing phonological rules to apply 'inbetween' morphological rules. The early papers on Lexical Phonology (Kiparsky, 1982, *inter alia*.) viewed it as a multi-level system in which a lexical item goes through derivations, inflections and sound changes. Each level consists of a morphological component followed by a phonological component thus enabling morphology and phonology to interact.

Each of the levels in this model is roughly equivalent in function to the boundaries used in SPE and each level is distinct from the other levels. The boundaries used in SPE are no longer needed since the phonological rules don't have to wait for all the morphological rules to apply. Also, processes from an earlier level and the morpheme boundaries it contained are not accessible to later levels. The convention used to ensure this inaccessibility is that of Bracket Erasure.

BRACKET ERASURE

Internal brackets are erased at the end of each level.

One problem that I've encountered in Lexical Phonology is the use of square brackets, [ ], to contain lexical material. Lexical representations are underlying or theoretical forms in contrast to phonetic representations which are surface forms. Yet phonetic forms are written with square brackets also. To avoid any confusion, all phonetic forms will specifically mentioned as such; any other use of square brackets will be for lexical material.

In the tradition of generative phonology, Shaw (1980) lists four types of

boundaries for Dak^{h}ota:

Morpheme boundary	+	weak
Lexical derivational boundary	%	|
enclitic boundary	=	|
word boundary	#	strong

Each of the first three boundaries is roughly equivelant in function to one of the levels in Shaw's (1986) Lexical Phonology model (see Table III).

Although the early versions of the theory viewed each level as being distinct and disallowed access to morphological information from an earlier level, the more recent versions have softened this stance. In the introduction to Kiparsky (1985), he goes so far as to refer to the levels as 'quasi-autonomous'. Mohanan (1986) refers to 'the loop' which permits the output from Level III to feed back into Level II. In English, this allows a compound (compounding is a Level III process) to acquire a Level II ending:

[half-hearted] → [[half-hearted][ness]].

Mohanan considers 'the loop' to be universal.

There are other aspects of Mohanan's version which make it stronger than Kiparsky's early version. Whereas Kiparsky can classify phonological rules as being lexical and post-lexical, Mohanan claims that it is the phonological rule's application which can be classified this way. Instead of two different sets of phonological rules, Mohanan has one set. Each rule is given a domain in which it applies. Rules may apply in the lexical module, the postlexical module, or in both. There are no 'lexical rules' but rather rules that apply within the lexicon. Rules are stated only once in the grammar but included are specifications regarding their relative ordering and domain of application. However, cyclicity is a property of the stratum not the rule. A rule may apply cyclically in a cyclic stratum and noncyclically in a noncyclic stratum. This contrasts with Kiparsky's claim of cyclic phonological rules.

Dak^{h}ota Lexical Phonology

The first work published on Dak^{h}ota Lexical Phonology was by Shaw (1985) and I would direct the reader to it and the other articles in Phonology Yearbook 2 which deal solely with Lexical Phonology (albeit slightly out of date now). Table III is taken from Shaw's paper and is her model for Dak^{h}ota Lexical Phonology. The Underlying Representation goes through three levels of morphology and phonology before exiting the Lexicon and entering the Post-lexical Phonology. It is in the Post-lexical Phonology that the derived word becomes phonetically realized. In Dak^{h}ota, the voicing of stops occurs in the Post-lexical Phonology. Processes of assimilation, dissimilation, lenition and

fortition generally occur post-lexically.

Lexical Phonology deals with distinctive features or phonemes. Post-lexical Phonology deals with allophones. In English, the difference between aspirated and unaspirated voiceless stops is taken care of post-lexically since these are not distinctive features in English. Likewise, the devoicing of /l/ after a voiceless stop occurs postlexically as in the word /play/.

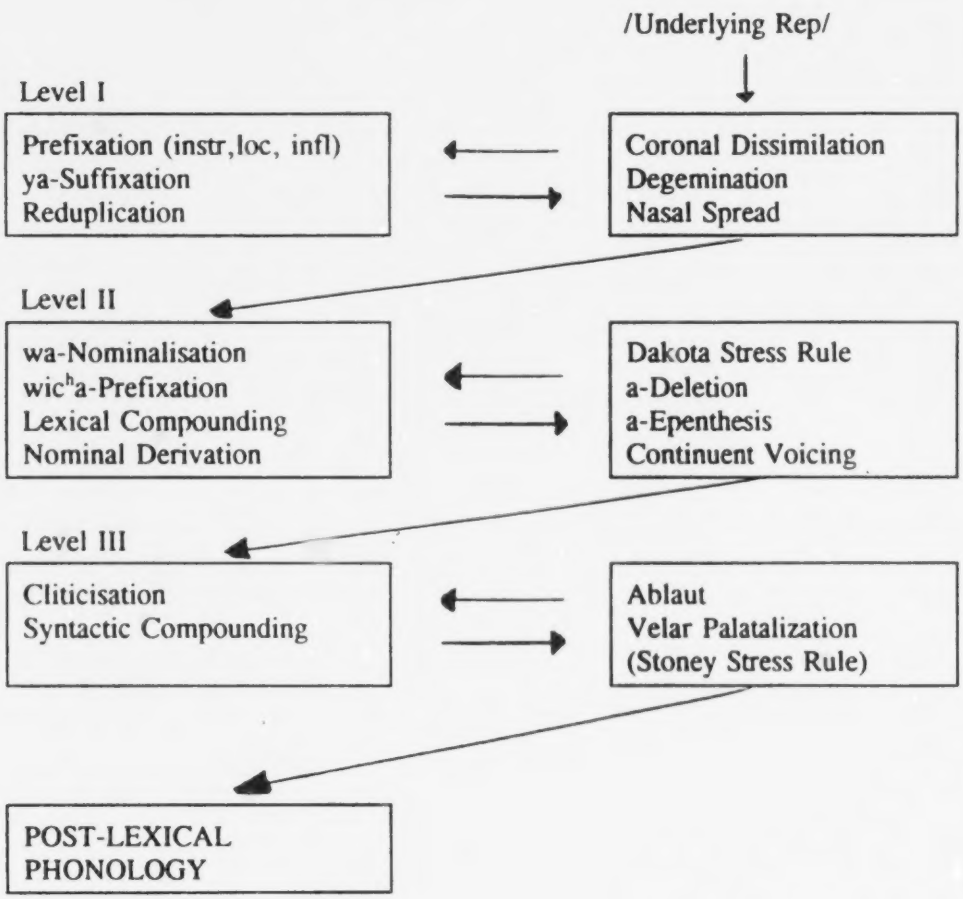


TABLE III: (from Shaw (1985:175) **Model for Dakota Lexical Phonology**

DAK^hOTA MORPHOLOGICAL PROCESSES

The basic underlying element in Dak^hota Morphology is the root. The root

can go through several different word-formation (morphological) processes. Attached to the root can be prefixes, which includes instrumental and locative markers, nominalizers, and personal pronoun agreement affixes; and suffixes or enclitics, which can express temporal aspects, plurality, negation, gender of the speaker, or the type of speech act. Usually, the locative prefix(es) are ordered before the instrumental prefix(es). Pronominal affixes are usually next to the verb root but the position can vary depending on how closely the other prefixes are associated with the verbal meaning. Enclitics have a fairly rigid ordering which is described in Rood & Taylor(1976).

Nearly all prefixes take the (+) boundary which means they are added at Level I (the two noted examples are the nominalizer *wa-* and the third person plural animate pronoun *wic^{h}a-* which are added at Level II). Pronominal affixes come before the verbal root although their placement with respect to instrumental and locative affixes may vary. The first person singular and second person affixes are different for active and stative verbs. There is no third person marker except for the collective plural form. Plural forms are generally marked by the enclitic *=pi* although third person inanimate plural subjects are marked by the reduplication of the verb root.

(1) STATIVE

/wašte/ to be good,pretty

mawášte	I am good
niwášte	you are good
wašté	he/she is good
ųwášte	you and I are good
ųwáštepi	we are good
niwáštepi	you(pl)are good
waštépi	they(anim,distr) are good
wic^{h}áwašte	they(anim,coll) are good
waštéšte	they(inanim) are good

/oluluta/ to be sweltering (to feel hot and sweaty)

omáluluta	I'm sweltering
onílluluta	you are sweltering
olúluta	he/she/it is sweltering
ukóluluta	you and I are sweltering
ukólulutapi	we are sweltering
onílulutapi	you(pl) are sweltering
olúlutapi	they(anim,dist) are sweltering
owíc^{h}aluluta	they(anim,coll) are sweltering

(2) ACTIVE

/icu/ to take

iwácu	I took (it)
iyácu	you took (it)
icú	he/she took (it)
ukícu	you and I took (it)
ukícupi	we took (it)
iyácupi	you(pl) took (it)
icúpi	they took (it)

/inaya/ to have as a mother

ináwaye	I have her as a mother
náyaye	you have her as a mother
náye	he/she has her as a mother
iná?uye	you and I have her as a mother
iná?uyapi	we have her as a mother
náyayapi	you(pl) have her as a mother
náyapi	they have her as a mother

The pronominal affixes given above for the active verbs can be viewed as agentive affixes while the pronominal affixes given in the stative paradigm are patient affixes. In the two active verb conjugations given above the patient has been the third person singular which is unmarked in Dak^{h}óta. When the patient is not the third person singular the appropriate patient affix is used and precedes the agent prefix except in the case of the second person patient(singular and plural). The prefix *c^{h}i* is used for the forms which are equivalent to the English *I (verb) you*, and the first person plural agent precedes the second person patient form (singular and plural).

Additional Morphological rules include reduplication, and two types of compounding: lexical and syntactic. Reduplication of verbal roots serves several functions in Dak^{h}ota. It can mark the plurality of an inanimate subject, a repetitive action, intensification, and a distributive action. The actual process of reduplication consists of the copying of the final syllable of the root. It is important to note here that, underlyingly, there are two types of roots: consonant final (C#) and vowel final (V#). Although they each will surface as vowel final due to what Shaw (1986) calls the rule of a-Epenthesis (she calls it Stem Formation in Shaw (1980)). This rule adds a final vowel to the C# roots but only after reduplication has taken place. The forms of the possible underlying roots are shown here:

(3) V#
$(C_1^2V)C_1^2V$

/niya/→ niyá	he breathes
/kte/→ kté	he kills (it)
/p^{h}a/→ p^{h}á	it barks
/naxma/→ naxmá	he hides (it)
/paha/→ pahá	hill
/yuγą/→ yuγą́	he opens (it)

(4) C#
C_1^2VC

/caγ/→ cáγa	it freezes
/kaγ/→ káγa	he makes it
/top/→ tópa	it is four
/sap/→ sápa	it is black
/šap/→ šápa	it is dirty
/šų́k/→ šų́ka	dog

It should also be noted that the stress falls on the first syllable for C# roots and on the second syllable for V# roots of more than one syllable. This is accounted for by having a stress rule apply before the a-epenthesis rule. The Dakota Stress Rule (Shaw (1985)) places the stress on the second syllable of a word. If there is only one syllable, it is stressed.

(5) Dakota Stress Rule(DSR):
$V \rightarrow \acute{V} / [(C_0V)C_0$_

Thus a monosyllabic word will be stressed and a word of two or more syllables will have stress on the second syllable. The DSR needs to apply after prefixation takes place since the prefixes can be stressed if they occupy the second syllable.

(6)

ksá	he cut it
waksá	he cut it (*wa-* Absolutive)
wakíksa	he cut his own
wakíciksa	he cut it for him
wayéciksa	you cut it for him
wamíyeciksa	you cut it for me
wawíc^{h}ayeciksa	you cut it for them
wawáwic^{h}ayeciksa	you cut s.t. for them

We should note that Prefixation comes before the DSR which comes before a-Epenthesis: Prefixation > DSR > a-Epenthesis. This fact is accounted for in

Shaw's (1985) Lexical Phonology model. She places Prefixation at Level I (as a morphological rule) and the DSR precedes a-Epenthesis at Level II (as phonological rules). She also places Reduplication at Level I since it appears to happen before the DSR. The relative ordering of Prefixation and Reduplication in Level I doesn't seem to matter since only the final syllable is reduplicated.

(7) **Reduplication of V# and C# roots**

V#

/pʰe/	→ pʰe + pʰé	'are sharp'
/icu/	→ icú + cu	'pick up'
/wacʰi/	→ wacʰí + cʰi	'to dance'
/yamni/	→ yamní + mni	'three'
/háska/	→ háska + ska	'are tall'

C#

/xap/	→ xap + xápa	'to rustle'
/nʉp/	→ nʉp + nʉ́pa	'two'
/sap/	→ sap + sápa	'be black'
/kaɣ/	→ kax + káɣa	'to make'
/nak/	→ nak + náka	'to twitch'

There are several things to take note of from the preceding examples. I have shown the underlying root (in slashed lines //) and the reduplicated form as it would appear after all Lexical processes (i.e. DSR, and a-Epenthesis for C# roots). The form /háska/ is written with the accent in the underlying form since the stress is always on the first /a/. Kiparsky(1982) considers a lexical entry to be a type of rule. His Elsewhere Condition states that a more specific rule will apply before a general rule and in effect block the general rule. Since /háska/ is already marked for stress, it will block the DSR.

Below is a derivation of a C# root (the syllable created by the reduplication process is shown in italics):

(8)

Underlying form:	/sap/ 'to be black'
Level I	
Reduplication	[[sap][*sap*]]
Level II	
DSR	[sapsáp]
a-Epenthesis	[[sapsáp]a]
Surface form:	sapsápa

The derivation of a V# root would appear as follows:

(9)

Underlying form:	/yamni/	'three'
Level I		
Reduplication	[[yamni][*mni*]]	
Level II		
DSR	[yamnímni]	
Surface form:	yamnímni	

The next type of morphological process we need to look at is compounding. As we see by Shaw's model, there are two types of compounds: Lexical compounds at Level II and Syntactic compounds at Level III. As can be predicted, the differences between the two types of compounds will be seen in the stress patterns and also the presence or absence of the epenthetic *-a*. Lexical compounds which contain a C# root will lack the epenthetic *-a*. Also, since Lexical compounds are formed before the DSR, they will have only one stressed syllable while the Syntactic Compounds will have two. The Syntactic Compounds will have the epenthetic *-a*. An excellent example of the differences between Lexical and Syntactic Compounds are the words: cʰexzí ('brass kettle') and cʰéɣazì ('yellow kettle'). The Lexical Compound (cʰexzí) has only one stressed syllable while the Syntactic Compound has two. The second stressed syllable has secondary stress. The example is composed of the morphemes {cʰex} which means 'kettle' and {zi} which means 'yellow.' The following diagram shows their derivations:

(10)

	Lexical	Syntactic
Underlying form:	/cʰex/ /zi/	/cʰex/ /zi/
Level I	---	---
Level II		
Lex.Cmpnd	[[cʰex][zi]]	---
DSR	[[cʰex][zí]]	[cʰéx] [zí]
a-Epen		[[cʰéx]a] [zí]
Voicing		[[cʰéɣ]a] [zí]
Level III		
Syn.Cmpnd		[[cʰéɣa][zí]]
Surface form:	cʰexzí	cʰéɣazì

SYLLABLE STRUCTURE

A recent proposal by Kellogg (1991) attempts to simplify Shaw's (1986)

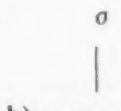
phonological analysis by employing a prosodic theory of syllable structure. According to Kellogg, by using certain universal principles of syllable structure, one can do away with some of the rules from Shaw's analysis. I will first give a brief overview of the syllable theory, then I will show how Kellogg applies it to Dak^{h}ota and the rules it should replace, and finally I will show how the method falls short of achieving its simplification.

According to Kellogg, within the lexicon, the Lak^{h}ota syllable is open. The concept of Structure Preservation is upheld within the lexicon. Structure Preservation does not apply Post-lexically meaning that syllable codas can (and do) exist there. Any Lak^{h}ota syllable in the lexicon will adhere to the syllabic template: C_0V. A word final consonant will be regarded as extraprosodic (ex). Extraprosodic material can only exist word-finally. If an extraprosodic unit which ends up in word-internal position due to some morphological process (such as reduplication) it must either associate with the onset of the following syllable or be erased by the process of Stray Erasure. There are two things that can happen to the word-final extraprosodic material: i) will either form the onset of a new syllable or ii) if it occurs at the last level of the lexicon it may become a coda post-lexically.

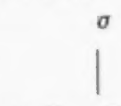
(11) **Rules for Creating Syllable Structure**(Kellogg, 1991:32):

a) Moraify all sonorous segments that are [-cons].

b) Project a syllable node over each mora.



c) Associate all licensable onsets to syllable nodes.



d) Assign extraprosodicity to all word-final consonants.

$$\overset{[ex]}{\underset{|}{\ }}$$

$$\text{d) } C]_w \rightarrow C]_w$$

Below are some of the phonological rules given by Shaw (1980, 1985) which Kellogg claims we can replace by Prosodic Theory:
(12)

a. **Degemination:**

$C_i \rightarrow \emptyset$ / __ + C_i

/kʰak/ kʰak-kʰak →[kʰakʰáka]
'to rattle'
/xux/ xux-xux →[xuxúɣa]
'to thunder'

b. **Cluster Simplification:**

C → ∅ / __CC

/xpec/ xpec-xpec →[xpexpéca]
'lifeless'
/ksap/ ksap-ksap →[ksaksápa]
'be wise'
(lex-compd) [pʰet-snis](fire-to fade)→pʰesníza
'embers'

c. **Dissimilation:**

$$\begin{bmatrix} -\text{cont} \\ +\text{cor} \end{bmatrix} \rightarrow \begin{Bmatrix} -\text{cor} \\ -\text{ant} \\ -\text{son} \end{Bmatrix} / __ + [+\text{cor}]$$

/šic/ šic-šic →[šikšíca]
'be bad'

d. **Epenthesis:**

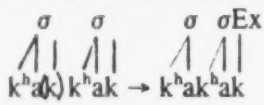
$$\emptyset \rightarrow a \; / \; C__ \begin{Bmatrix} = \\ \# \end{Bmatrix}$$

/cap/ cap-a →[cápa] 'beaver'

Degemination[1] and Cluster Simplification can be accounted for by the

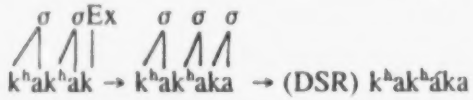
Stray Erasure of the outermost potential onset which cannot associate with the following syllable due to well-formedness conditions of the onsets. The set of possible onsets in Dak^{h}ota is given in Table IV below. In the example above for /k^{h}ak/, the final *k* cannot associate to the onset of the next syllable for the cluster *kk*^{h} is not permissible so it is deleted.

(13)



The final extraprosodic *k* in *k*^{h}*ak*^{h}*ak* becomes the onset for a new syllable with the addition of an *-a*. This accounts for the rule of a-Epenthesis.

(14)



Only word-final consonants can be extra-prosodically licensed, thus non-word-final consonants are deleted by Stray Erasure. 'Given the proposed open syllable structure, all consonants must be syllabified as onsets, with the exception of those occurring word-finally (Kellogg (1991:35)).'

	p	t	k	s	š	c	l	n	m	w
p		pt		ps	pš	pc				
t			tk							
k	kp	kt		ks	kš	kc	kl	kn	km	kw
s	sp	st	sk			sc	sl	sn	sm	sw
š	šp	št	šk			šc?	šl	šn	šm	šw
x	xp	xt				xc	xl	xn	xm	xw

TABLE IV: (from Shaw (1989:7))Possible Syllable Onsets

Using Kellogg's syllable analysis, the reduplicative template consists of the

final syllable of the root plus any extra prosodic consonant (a C# root has an extraprosodic consonant) copied to the right of the root. For V# roots this means that the final syllable is repeated. For C# roots the final syllable plus the extraprosodic final consonant are copied. The original final consonant can no longer be viewed as extraprosodic (since only 'word' final consonants can be licensed as such) and must either associate to the onset of the duplicate syllable or be deleted by the process of Stray Erasure.

(15)

Process	/sap/ 'black'	/ksap/'be wise'
a. affixation of the reduplicating template:	σ + σex	σ + σex
b. copy melody:	sap sap	ksap ksap
c. association: (+Onset Rule)	σ + σex	σ + σex
d. Stray Erasure:	σ + σex	σ + σex
e. final form:	sapsápa	ksaksápa

The processes of association and Stray Erasure are viewed as universal conventions. They do not need to be listed as rules for a language but they do have to follow the constraints of a language's syllable structure.

The theory seems to work well for reduplicated forms but not for Lexical Compounds. Kellogg (1991:38) claims that Stray Erasure applies at the end of each level of the lexicon. This would mean that there should be no geminates at any level. This contrasts with Shaw's analysis. Shaw differentiates between Levels I and II by showing that geminates don't occur at Level I but <u>can</u> occur at Level II. She gives the examples of the Lexical Compounds (Shaw 1985:185):

(16)	[cʰap][pʰat]	cʰappʰáta	'butcher beavers'(beaver+butcher)
	[wat][tʰete]	wadtʰéte	'gunwale'
	[tʰok][k'u]	tʰokk'ú	'to give over an enemy'

Boas and Deloria (1941:13) also list several compounds where there appears to be gemination[2]

(17)	hąppáhi	'to collect moccasins'(moccasin+collect)
	hąppʰáxta	'to tie moccasins in a bundle'(mocc.+tie in bundle)
	šųkkáštaka	'to whip a horse'(horse+to whip)

íyotakkʰiya 'to make sit down'
šɥkkoyakya 'to rope a horse' (from Buechel(1970))

Either the above examples are exceptions or Kellogg's analysis doesn't hold up. I hesitate to call these exceptions simply because they are few in number. The conditions needed to form possible geminates limit the number that can be formed. A C# root (usually a noun) must form the first member of a compound and the second member must begin with the same consonant. Add to this the fact that only a limited number of phonemes actually occur root finally; and we narrow the possibilities more. It would be better for a theory to be able to explain these clusters rather than to list them as exceptions. But geminates are not the only consonant clusters that appear. There are other Lexical Compounds which contain complex consonant clusters which are not acceptable syllable onsets.

šɥkská 'white horse'(horse+white)
pʰelmná 'smell of fire'[pʰet][mna] (fire+smell)
capkté 'to kill beavers' (beaver+to kill)

It becomes clear that there is a difference in how the formation of complex is handled in Reduplication and Lexical Compounding. Reduplicated forms seem to adhere to strict well-formedness rules and Structure Preservation which quickly delete or change any segments which could make an unacceptable onset. Lexical Compounding rules seem to be more lax. We could possibly temper Kellogg's analysis by limiting Stray Erasure to Level I. This would handle the dilemma but then it would be hard to argue that her analysis is any simpler than Shaw's. And what about the condition given by the first Lexical Phonologists (Kiparsky) that the domain of Structure Preservation is the Lexicon? More recent work done in Lexical Phonology has shown that many of the strict conditions put on the theory in its formative years no longer hold up. In the introduction to Studies in Lexical Phonology, Kaisse and Hargus (1993:16) write that 'with nearly a decade of subsequent work, we now know that many of these characteristics **(such as Structure Preservation)** cannot be considered diagnostic of the lexical or postlexical status of a rule.'(Bold letters are my addition). Also: 'In some languages, structure preservation appears to hold of postlexical rules, whereas in other languages, some rules which are clearly lexical (albeit word-level) may not be structure-preserving (Kaisse and Hargus (1993:16)).'

The major drawback in limiting Structure Preservation to Level I is that the structural rule of epenthesizing a root final *-a* to C# roots occurs at Level II after Lexical Compounding (Lexical Compounds formed from C# roots do not have the epenthesized -a but Syntactic Compounds (Level III) do). I do not claim to have the answer to this problem but it reveals that more work is needed in the

area of Dak^{h}ota syllable structure.

NOTES

1.I believe I need to make some comments about geminates in Dak^{h}ota. I will be the first to admit that on the surface (or phonetically) there don't appear to be geminates (i.e. two identical segments). But underlyingly they can arise! As in the example given /xux/ will reduplicate to /xux+xux/. I consider the two adjacent x's to be geminates although they are quickly destroyed by the Stray Erasure of the left-most one since it cannot associate to the following onset giving /xu+xux/. I will call them geminates for now although perhaps we should call them *virtual* geminates.

2.Boas & Deloria (1941:13) do not write the doubled consonants as I have done. They mark the consonant in question with a [ˈ] to show the extra length of the segment. For example, where Boas & Deloria write *hąpˈáhi*, I write *hąppáhi*.

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